

# Personality characteristics and chronic pain

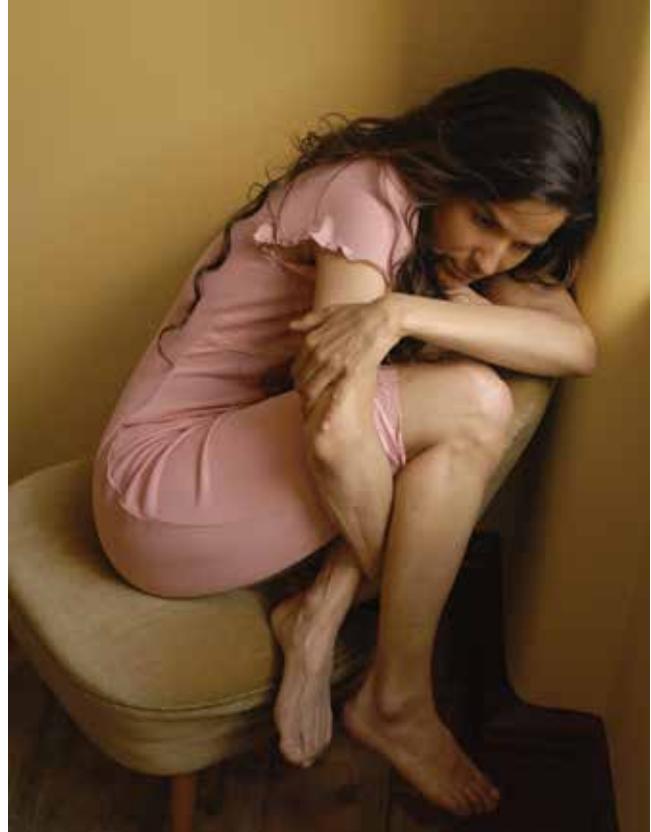
## Why some people feel pain worse than others

**SALAM HUSSAIN** MB ChB(Irq), AMC, FRANZCP, IFAPA

Several personality characteristics have particular effects on perception of pain, propensity to progress into chronic pain and engagement in treatment protocols. Assessment of temperament and personality dimensions can provide additional information to help guide patients with pain disorders in their recovery from their complex problems.

### Key points

- A person's brain function and personality characteristics have particular effects on perception of pain, propensity to progress to chronic pain and engagement in treatment protocols. Pain itself also impacts on aspects of personality traits, exacerbating them during pain episodes.
- At the level of brain function, individuals who seek less risk and are more fearful of pain are more likely to experience more pain, perhaps due to the increased activation of the amygdala.
- Personality characteristics such as anxiety (neuroticism), harm-avoidance, catastrophising and hypochondriasis are associated with the presence of chronic pain.
- The traits of agreeableness and egosilience are associated with effective self-regulation of pain.
- Personality assessment should be part of the initial assessment of a patient presenting with a pain disorder. This information can help clinicians guide these patients in their recovery journey from their complex problems.



It has been recognised for many years that patients with chronic pain suffer from various psychiatric comorbidities, such as depression, anxiety and personality disorders. The Australian BEACH project demonstrated that one in five patients in general practice suffers from chronic pain, and it is also known that the prevalence of personality disorders in people with chronic pain is higher than their prevalence in psychiatric outpatients.<sup>1-3</sup>

The International Association for the Study of Pain (IASP) defines pain as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage' (<http://www.iasp-pain.org/Taxonomy>). This definition generates a paradox between the subjectivity of pain and the objectivity of tissue damage.<sup>4,5</sup>

Personality, on the other hand, can be viewed in terms of underlying 'traits' (temperaments) that can form the basis for personality categories. These traits are, by definition, stable over time across the life span. However, they can be viewed as 'states' – i.e. aspects of personality that are amenable to change and susceptible to various environmental factors.

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This short review explores the relation between chronic pain and personality characteristics, from both a theoretical and clinical perspective, and provides some psychosocial strategies so that GPs may help their patients with chronic pain.

### Personality and pain interactions

It is accepted that chronic pain may precipitate, exacerbate or be exacerbated by mood and anxiety disorders. However, its interaction with personality structure is less well understood. Borderline personality disorder (BPD) can be used as an example to shed some light on this complex interaction.

BPD is the most prevalent personality disorder in the chronic pain population. Several studies have shown the prevalence of BPD to be approximately 30% in patients presenting with chronic pain, compared with a prevalence of just over 20% in patients admitted to psychiatric services.<sup>6-8</sup> Patients with comorbid BPD and chronic pain appear to have higher pain scores but need less analgesic medications when in remission from their personality crises. In addition, in the first-degree relatives of patients with BPD, there is a clustering of somatoform pain disorders.

Two hypotheses have been proposed to explain aspects of this strong association between BPD and chronic pain:<sup>9</sup>

- chronic pain is a feature of self-regulation difficulties that are characteristics of BPD
- chronic pain symptoms may be an attempt to communicate emotional distress or elicit caring responses from others.

### Brain functioning and pain development

At the level of brain function, those individuals who seek less risk and are more fearful of pain are more likely to experience greater pain, perhaps due to increased activation of the amygdala.

A study to assess whether the brain functioning of people who suffered from chronic pain after a back injury differed from those who experienced only temporary pain after such an injury used gambling as the reward-related task (indicating willingness to risk losing money).<sup>10</sup> The results showed that monetary reward behaviour differed between individuals with and individuals without chronic back pain, with those with chronic back pain being more likely to take greater risks when a big enough reward was offered. Distinct abnormalities were demonstrated in the neuronal networks of those who developed chronic pain over a one-year period, with an accuracy of 80 to 100%.

### Other factors affecting pain development

Beyond the brain, factors such as genetics, temperament, emotional state and coping style have been implicated in both the severity of pain and the development of chronic pain.

### Personality traits and chronic pain

Pain was theorised as 'conversion' in Breuer and Freud's classic book *Studies on hysteria*, published in 1895. The observation that certain personality characteristics or traits may predispose

### Psychological strategies to help patients with chronic pain

- Use of personality assessment screening tools – this may be helpful in recognising personality characteristics. Examples are the Standardised Assessment of Personality Abbreviated Scale (SAPAS) and the Iowa Personality Disorder Screen (IPDS)
- Caution is advised in interpreting personality characteristics as some may change as the pain improves
- Training patients in emotional regulation, such as anger management – this can affect opioid receptor response, with a beneficial effect on pain (achieved through referral for anger management, counselling groups, etc)
- Training patients to be more empathic – this can affect the opioid receptor system (achieved through referral for psychological services, group therapy, etc)
- Helping patients focus on self-control, acceptance and a reduction in catastrophic thinking (achieved through prescribed programs and psychological intervention)

individuals to chronic pain has been addressed since by several studies, as listed below.

- Traits of hysteria and hypochondriasis are higher than other personality traits in patients with chronic pain.<sup>11</sup>
- Pain severity, pain interference and pain duration do not correlate significantly with acceptance (as was previously suggested).<sup>11</sup>
- The trait of 'harm avoidance' has long been associated with pain-related anxiety.<sup>12</sup>
- The association between harm avoidance and pain-related anxiety may reflect both a 'trait' and a 'state'.<sup>13</sup>

An important finding in studies of coping, somatisation, illness behaviour and certain personality characteristics is that stressors such as illness and pain exacerbate these personality traits, and treatments improve them. A diathesis-stress framework has been developed to explain the high comorbidity of personality disorders and chronic pain: that is, underlying genetic and early-life predispositions to personality disorders may become apparent during the stressful time of experiencing a chronic pain disorder.<sup>2</sup>

A review of relevant studies found that almost all of the studies (92.3%) showed improvement in the trait scores of patients with chronic pain after pain treatment, and concluded that 'some trait tests and inventories may not be pain state independent'.<sup>14</sup> Hence, the review authors cautioned about interpreting 'postpain development personality profiles as being indicative of the true prepain personality structure, if measured by these tests'.<sup>14</sup>

Other researchers have attempted to explore further many of the issues surrounding personality traits and pain, using depression and anxiety scales to measure 'states' and the Temperament and Character Inventory to measure 'traits'.<sup>5</sup> The Temperament and Character Inventory is based on a psychobiological model of personality that distinguishes between temperament and character dimensions.<sup>15</sup> It

seems that some personality traits are stable whereas others are more likely to change over time depending on concurrent comorbidity with depression and anxiety. Certain Temperament and Character Inventory scales and behaviours are often observed in patients with chronic pain. For example, scores on a scale of the Temperament and Character Inventory known as 'harm avoidance' was significantly higher for patients with chronic pain than for control subjects. Harm avoidance is similar to fear avoidance and involves autonomic arousal; it relates to early emotions.<sup>12,15</sup>

### Neuroticism

Neuroimaging studies have demonstrated in several brain regions endogenous opioid activity that modulates both the experience of physical pain and negative emotions. 'Angry hostility' was the neurotic feature that most strongly predicted a (poor) placebo response.<sup>16</sup>

Neuroticism is a trait associated with negative emotionality and is implicated in chronic pain. It has been suggested that people with high levels of neuroticism tend to report more physical symptoms and complaints, such as headaches and muscle tension, than do less neurotic individuals.<sup>17</sup>

### Agreeableness

Agreeableness is an interpersonal trait associated with co-operativeness. Patients who are highly agreeable tend to have a better relationship with their doctors and have more empathy with the suffering of others. A positron emission tomography (PET) scan study showed that the placebo response (an opioid receptor function) occurred in brain regions that respond to observing pain in others, and therefore could play a role in empathy.<sup>16</sup> Such an overlap between the brain regions associated with the placebo response and with empathy might help explain the connection with agreeableness.<sup>18</sup>

Agreeableness is also related to the ability to control the expression of anger, which has been linked to the opioid system. This may be another reason why agreeableness is linked to the placebo effect and pain management.

### Egoresiliency

Another important personality trait is flexibility in self-control, or egoresiliency. Egoresilient individuals can adapt their level of self-expression to the demands of the situation. Such resilience can help individuals cope with stress and adversity, in contrast to overcontrolling or undercontrolling situations, which can result in stiff and repetitive or chaotic and unfocused responses, respectively.<sup>19</sup>

The trait of egoresiliency may be associated with lower levels of activation of the dopamine system during expectation of reward, and lower levels of dopamine in turn have been linked to more activation of endogenous opioid receptors during a painful stressor. Thus it can be hypothesised that people who are better able to regulate their emotions may also be able to regulate their pain more effectively.

It could also be the case that people with greater self-control may

take a positive attitude toward their treatment, even placebo treatment, rather than passively waiting to see what happens.

### Psychological strategies to help patients with chronic pain

Additional information to help clinicians guide patients in how to cope with their chronic pain and get themselves through this adversity can be provided by assessment of each patient's temperament and personality dimensions. This assessment should be part of the patient's initial assessment on presentation in primary care with a pain disorder. Psychological strategies GPs can use to help their patients with chronic pain are listed in the Box.

Personality assessment tools that can be helpful in recognising personality characteristics include the Standardised Assessment of Personality Abbreviated Scale (SAPAS) and the Iowa Personality Disorder Screen (IPDS).

### Conclusion

More than 30% of patients with chronic pain have a comorbid personality disorder, yet often personality is either not assessed at all or not until late in the course of their chronic pain. Assessment of temperament and personality dimensions can provide additional information to help clinicians guide these patients in their recovery from their complex problems. Such assessment should, therefore, be part of a patient's initial assessment on presentation in primary care with a pain disorder; personality assessment tools may be used in this assessment. This assessment is particularly important before prescribing treatments for chronic pain in the context of certain personality characteristics.

Several personality characteristics appear to have particular effects on perception of pain, propensity to progress into chronic pain and engagement in treatment protocols. Characteristics such as anger control, anxiety traits (neuroticism), harm avoidance, catastrophising, hypochondriasis and agreeableness have significant impacts on pain management.

Nevertheless, caution is required in interpreting personality characteristics in general. Some of these characteristics are exacerbated by chronic pain; they are usually ameliorated through both psychosocial strategies and effective treatment of pain.

We are only in the early stages of understanding the role of temperamental factors in pain pathogenesis and pain-related anxiety in general.

**PMT**

### Further reading

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A list of references is included in the website version ([www.medicinetoday.com.au](http://www.medicinetoday.com.au)) of this article.

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